TECHNICAL REVIEW DOCUMENT
For
Significant Permit Modification to
OPERATING PERMIT 98OPWE204

to be issued to:

Nutri-Turf, Inc.
Weld County
Source ID 1230497

Cathy Rhodes
November 2001

I. PURPOSE:

This document will establish the basis for decisions made regarding the applicable requirements, emissions factors, monitoring plan and compliance status of emission units covered by the operating permit proposed for this site. It is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the original application submittal of September 28, 2001, and preliminary information submitted on February 2, 2001, and subsequent additional information.

Any revisions made to the underlying construction permits associated with this facility in conjunction with the processing of this Operating Permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This Operating Permit incorporates and shall be considered to be a combined construction/operating permit for such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this Operating Permit without applying for a revision to this permit or an additional or revised Construction Permit.

II. SOURCE DESCRIPTION:

This facility is an auxiliary operation of the Anheuser-Busch, Inc., Fort Collins Brewery. A portion of the brewery wastewater is piped to this site for land application. The land is irrigated through center pivots with wastewater so that soil bacteria can break down the soluble organics and the vegetation can utilize the water and the nutrients. The production of brome grass, alfalfa, other grasses, wheat, and corn is sold. The Brewery is undergoing review under Operating Permit 95OPLR064.

This facility is located on County Road #15, in Weld County. The area is classified as an attainment area for all pollutants. The landfarm is not subject to the Accidental Release Program provisions of 112(r). Wyoming is an affected state within 50 miles of the facility.

There are two Federal Class I areas within 100 kilometers of the facility: Rocky Mountain National Park and Rawah National Wilderness Area.

III. Project Description

The permittee plans to expand the Fort Collins brewing operations to increase production to 13.5 million barrels per year from 6.8 million barrels per year.The expanision will involve installation of a new boiler, new grains handling equipment, upgrades to existing grains handling and brewing equipment, addition of new brewing and packaging equipment, and expansion of the land farm for treatment of increased wastewater.

The brewery's higher strength process streams are distilled to reclaim ethanol before being discharged into the wastewater system. Brewery wastewater is either sent to the Fort Collins publicly owned treatment works or is sent to the landfarm via a six mile pipeline. The wastewater is stored in five 1.5 million gallon open storage tanks, and then piped to pivot sprinklers for application the next morning. Alfalfa and other similar crops are produced.

The expansion will result in an increase in VOC emissions which are subject to Prevention of Signficant Deterioration requirements, as discussed below. This expansion represents a significant operating permit modification, subject to public notice and EPA review. The expansion is being processed as a combined construction/operating permit. PSD applicable requirements are incorporated directly into the operating permit, as described under "Purpose," above.

IV. Emission Factor Source

4.5% ethanol evaporation, based on various sources. See previous Technical Review Document for this permit for discussion.

V. Sources of Emissions

Emissions occur at three points: the storage tanks; between irrigation nozzles and the ground; and evaporation from the ground and plant surfaces.

VI. Throughputs

51.6 mmbarrels wastewater per year (42 gallons per barrel)

VII. Summary of Emissions

Pollutant	PTE After Modification (TPY)	Actual Emissions (1999/2000) (TPY)	Net Emission Increase (TPY)	PSD/NSR Significant Level
VOC	236.0	96.0	140	40

See Technical Review Document for 95OPLR064 for emissions for entire project. Actual emissions are based on the originally permitted emission level.

VIII. Regulatory Requirements

No new applicable requirements were added to the operating permit, however, the following applicable requirements were revised:
Throughput and emission limits were increased.
Reporting requirements for modified existing sources are added.

X. Modeling Results

Please see the Technical Review Document for the brewery, Operating Permit 95OPLR064.

XI. Prevention of Significant Deterioration (PSD) Analysis

This source (which includes the Fort Collins Brewery) is classified as a major stationary source for PSD purposes. The VOC emissions increase due to the project is 253.5 tons/year, which is above PSD significant level of 40 tons/year, therefore VOC emissions due to this modification are subject to PSD requirements. Increases of other criteria pollutants are below significant increase thresholds, thus PSD review does not apply to any other pollutant.

Best Available Control Technology (BACT)

The permittee and the Division examined the following options for controlling emissions from wastewater:

Treatment at the Fort Collins publicly owned treatment works (POTW)
Treatment at the Brewery (On-site Wastewater Treatment Plant, WWTP)
Biological Energy Recovery System
Land application for Growing Crops

POTW: This option would send all brewery effluent to the Fort Collins Drake Water Reclamation facility. Given the increased hydraulic and organic loadings that the water plant would experience, significant upgrades to the plant would be required. The cost of upgrades is borne by Anheuser-Busch. The applicant did not include this option in their analysis, because they believe this option represents the controlled baseline emissions. The Division believes that, since the permittee would bear the cost of implementing this option, uncontrolled emissions prior to treatment in a POTW represents the baseline emissions.

On-Site WWTP: A survey of other breweries indicated that Anheuser Busch's Baldwinsville, New York brewery is the only Anheuser Busch brewery that uses an on-site waste water treatment plant. The treatment plant was part of the brewery when purchased by Anheuser Busch, Inc. All but three Miller breweries send their waste water to a POTW; the other three have on-site sludge removal facilities, and treated water is discharged into a river, and sludge is used for crop application. The Coors brewery in Golden, Colorado

treats some of its water using an on-site WWTP, and sends some to a POTW. The Anheuser-Busch Fort Collins brewery is approximately one third the size of the Coors brewery. On-site WWTP is not considered a viable option for treating the Fort Collins Brewery wastewater.

Biological Energy Recovery System (BERS): A BERS is an anaerobic pretreatment process that converts organic compounds to methane. The methane can then be used as fuel. Sludge production and electric energy requirements are less than for wastewater treatment plants, however, the sludge waste must still be disposed of, offensive odors may result, and the BERS effluent stream must be further treated prior to releasing to the environment.

Land Application: VOC emissions are reduced through physical, chemical and biological processes occurring in the soil and through nutrient uptake by the associated vegetation. Ethanol and other constituents in the applied wastewater are degraded, and transformed or immobilized in the soil/plant matrix. These same processes occur in conventional wastewater treatment systems. Land application treatment is dependent almost entirely on the microorganisms living in the soil for the degradation of organic substances. The biological processes occur in the upper soil layer as the applied organics are degraded by the microorganisms in the soil. The irrigation system is designed to minimize evaporative losses. The system is equipped with pivot sprinklers, drop pipes which extend the spray nozzles toward the ground, droplet producing nozzles, and splash plates for maximizing droplet size. The emission and cost information provided below is based on the range of data available (see discussion under Emission Factors, below).

The following table lists Division estimated emissions and costs for each option available at the time of construction. The appllicant's analysis assumes baseline emissions are 713 tons/year, based on treatment at a POTW. The Division's analysis uses uncontrolled emissions of 2600 tons/year for baseline emissions. In addition, the analysis submitted in February of 2001 used an emission rate of 117 tons/year for the land farm option. The September, 2001 PSD application cites an emission rate of 135 tons/year. The Division uses an emission increase of 140 tons/year for the calculations. The Division's increase is based on the originally permitted "actual" emissions of 96 tons/year, and the PSD application emission rate of 135 tons/year.

CONTROL OPTION	EMISSIONS (TPY)	CONTROLLED EMISSIONS (TPY)	COST (MM$)	COST EFFECTIVENESS ($/TON)
Landfarm	140	2460	3.62	1472
BERS	0	2600	6.1	2346
POTW	713	1887		4540*

*POTW cost is from previous 1999 BACT analysis.

RACT/BACT/LAER Clearinghouse - No information for brewery wastewater treatment was found in the EPA's control technology determination data base.

BACT Determination: The Division has determined that distillation and landfarm application represents BACT for the treatment of the Anheuser Busch Fort Collins Brewery wastewater. It appears distillation and landfarm application can control VOCs at least as well, if not better, than treatment at a POTW. BERS reduces emissions slightly more, at a reasonable but higher cost. Landfarm application reduces the energy requirements needed, and amount of sludge produced, for both POTW and BERS treatment.

Please see the Technical Review Document for the Brewery permit (95OPLR064) for discussion of other PSD requirements.

XII. Compliance Assurance Monitoring (CAM)

A significant operating permit modification triggers CAM review for modified permits, however, no emission points affected by this permit modification use a control device to achieve compliance with an emission limit or standard to which they are subject and have pre-control emissions that exceed or are equivalent to the major source threshold. Therefore, no points at this facility are subject to the provisions of the CAM program as set forth in 40 CFR Apart 64 as adopted by reference into Colorado Regulation No. 3, Part C, Section XIV.